Chapter 7
Upgrade Software Packages

Each JUNOS software release consists of the following software packages:

jkernel—Operating system package

jbase—Additions to the operating system

jroute—Software that runs on the Routing Engine

jpfe—Software that runs on the Packet Forwarding Engine

jdocs—Documentation for the software

jcrypto—Encryption software (in domestic software only)

The packages are also grouped together in a bundle, which is called jbundle.

Normally, you use the bundle to upgrade all of the software packages at the same time. You also can upgrade them individually. When upgrading to a new release, you must install the bundle; do not upgrade the packages individually.

If you are upgrading to Release 5.0 from 4.x or downgrading from 5.0 to 4.x, use the jinstall package. Otherwise, use the jbundle package to upgrade to a new release.

Downgrading from Release 5.0 to 4.x might require a two-step process. For more information, see “Upgrade to Release 5.0 or Downgrade from Release 5.0” on page 99.

To determine which packages are running on the router and to get information about these packages, use the show version command at the top level of the CLI.

This chapter discusses the following topics:

Upgrade All Software Packages

To upgrade all software packages, follow these steps:

1. Download the software packages you need from the Juniper Networks Support Web site, http://www.juniper.net/support/.

   To download the software packages, you must have a service contract and an access account. If you need help obtaining an account, contact your Juniper Networks sales representative or send e-mail to logistics@juniper.net.

   
   Note

   We recommend that you upgrade all software packages out-of-band using the console or fxp0 interface because in-band connections can be lost during the upgrade process.

2. Back up the currently running and active file system so that you can recover to a known, stable environment in case something goes wrong with the upgrade:

   ```
   user@host> request system snapshot
   ```

   The root file system is backed up to /altroot, and /config is backed up to /altconfig. The root and /config file systems are on the router's flash drive, and the /altroot and /altconfig file systems are on the router's hard drive.

   
   Note

   After you issue the request system snapshot command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.

3. Copy each software package to the router. We recommend that you copy them to the /var/tmp directory, which is on the rotating medium (hard disk) and is a large file system.

   ```
   user@host> file copy ftp://username:prompt@ftp.hostname.net/
      filename /var/tmp/filename
   ```

4. Add the new software package:

```
user@host> request system software add /var/tmp/jbundle-release-signed.tgz validate

/var/tmp/jbundle-release-domestic-signed.tgz
Checking compatibility with configuration
Initializing...
Using /packages/jbase-release_xyz
Using/var/tmp/jbundle-release_xyz-domestic-signed.tgz
Verified MD5 checksum of /var/chroot/var/tmp/jbundle/jbundle-release_xyz-domestic.tgz
Using /var/chroot/var/tmp/jbundle-signed/jbundle-release-domestic.tgz
Using /var/chroot/var/tmp/jbundle/jbase-release_xyz.tgz
Using /var/chroot/var/tmp/jbundle/jkernel-release_xyz.tgz
Using /var/chroot/var/tmp/jbundle/jcrypto-release_xyz.tgz
Using /var/chroot/var/tmp/jbundle/jpfe-release_xyz.tgz
Using /var/chroot/var/tmp/jbundle/jdocs-release_xyz.tgz
Using /var/chroot/var/tmp/jbundle/jroute-release_xyz.tgz
Validating against /config/juniper.conf.gz
mgd: commit complete
Installing package '/var/tmp/jbundle-release_xyz-domestic-signed.tgz' ...
Verified MD5 checksum of jbundle-release_xyz-domestic.tgz
Adding jbundle...
Verified MD5 checksum of jbase-release_xyz.tgz
Verified MD5 checksum of jboot-release_xyz
Verified MD5 checksum of jcrypto-release_xyz.tgz
Verified MD5 checksum of jdocs-release_xyz.tgz
Verified MD5 checksum of jkernel-release_xyz.tgz
Verified MD5 checksum of jpfe-release_xyz.tgz
Verified MD5 checksum of jroute-release_xyz.tgz
Auto-deleting old jroute...
Auto-deleting old jdocs...
Auto-deleting old jpfe...
Auto-deleting old jcrypto...
Restarting kmd ...
Auto-deleting old jkernel...
Auto-deleting old jbase...
Adding jbase...

WARNING:    A reboot is required to load this software correctly
WARNING:    Use the 'request system reboot' command
WARNING:    when software installation is complete

Adding jkernel...
Mounted jkernel package on /dev/vn2...
Adding jcrypto...
Mounted jcrypto package on /dev/vn6...
Adding jpfe...
Mounted jpfe package on /dev/vn3...
Adding jdocs...
Mounted jdocs package on /dev/vn8...
Adding jroute...
Mounted jroute package on /dev/vn12...
Saving package file in /var/sw/pkg/jbundle-release_xyz-domestic-signed.tgz ...
Saving state for rollback ...

root@host>
```

package-name is the full URL to the file. *release-number* is the major software release number; for example, 4.2R1.

The request system software add *package-name* validate command validates *package-name* against the current configuration as a prerequisite to adding the software. For more information about this command, see the *JUNOS Internet Softw are Guide* : *Oper ational Mode Command Reference* .

The request system software *package-name* validate command validates candidate software against the current configuration of the router. For more information about this command, see the *JUNOS Internet Softw are Guide* : *Oper ational Mode Command R eference* .

5. Reboot the router to start the new software:

```
user@host> request system reboot
```

6. After you have upgraded or downgraded the software and are satisfied that the new software is successfully running, issue the request system snapshot command to back up the new software:

```
user@host> request system snapshot
```

The root file system is backed up to /altroot, and /config is backed up to /altconfig. The root and /config file systems are on the router's flash drive, and the /altroot and /altconfig file systems are on the router's hard drive.

After you issue the request system snapshot command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.

Upgrade Individual Software Packages

To upgrade an individual JUNOS software package, follow these steps:

1. Download the software packages you need from the Juniper Networks Support Web site, http://www.juniper.net/support/.

   To download the software packages, you must have a service contract and an access account. If you need help obtaining an account, complete the registration form at the Juniper Networks web site, https://www.juniper.net/registration/Register.jsp. You can also call Juniper Networks support at 1-888-314-JTAC (from within the United States) 1-408-745-2121 (from outside the United States).

   

   We recommend that you upgrade all individual software packages out-of-band using the console or fxp0 interface because in-band connections can be lost during the upgrade process.

2. Back up the currently running and active file system so that you can recover to a known, stable environment in case something goes wrong with the upgrade:

   ```
   user@host> request system snapshot
   ```

   The root file system is backed up to /altroot, and /config is backed up to /altconfig. The root and /config file systems are on the router's flash drive, and the /altroot and /altconfig file systems are on the router's hard drive.

   

   After you issue the request system snapshot command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.

3. Copy each software package to the router. You might want to copy them to the /var/tmp directory, which is on the rotating media (hard disk) and is a large file system.

   ```
   user@host> file copy ftp://username:prompt@ftp.hostname.net/
      filename /var/tmp/filename
   ```

4. Add the new software package:

   ```
   user@host> request system software add /var/tmp/package-name-signed.tgz
   Checking available free disk space...11200k available, 6076k suggested.
   ```

   package-name is the full URL to the file.

   The system might display the following message:

   ```
   pkg_delete: couldn't entirely delete package
   ```

   This message indicates that someone manually deleted or changed an item that was in a package. You do not need to take any action; the package is still properly deleted.

If you are upgrading more than one package at the same time, add jbase first and the routing software package jroute last. If you are using this procedure to upgrade all packages at once, add them in the following order:

```
user@host> request system software add /var/tmp/jbase-release-signed.tgz
user@host> request system software add /var/tmp/jkernel-release-signed.tgz
user@host> request system software add /var/tmp/jpfe-release-signed.tgz
user@host> request system software add /var/tmp/jdocs-release-signed.tgz
user@host> request system software add /var/tmp/jroute-release-signed.tgz
user@host> request system software add /var/tmp/jcrypto-release-signed.tgz
```

5. Reboot the router to start the new software:

```
user@host> request system reboot
```

6. After you have upgraded or downgraded the software and are satisfied that the new software is successfully running, issue the request system snapshot command to back up the new software.

```
user@host> request system snapshot
```

The root file system is backed up to /altroot, and /config is backed up to /altconfig. The root and /config file systems are on the router's flash drive, and the /altroot and /altconfig file systems are on the router's hard drive.


Note

After you issue the request system snapshot command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.